

Antacid

Antacids are drugs that **neutralize hydrochloric acid in the stomach** . The acidic pH of the stomach is necessary to activate pepsinogen to pepsin . The neutralization of HCl and subsequent increase in pH will thus secondarily reduce the activity of pepsin. **Some antacids also create a protective layer** on the stomach lining or **stimulate the secretion** of endogenous prostaglandins . They are mainly used for heartburn, dyspepsia or ulcer disease of the stomach and duodenum .

Effects

The main effect of antacids is to **neutralize HCl** and thereby **increase pH** . The resulting pH depends on the administered substance and the content of food in the stomach. From an empty stomach, the substances disappear in about 30 minutes, if food is present, the effect lasts about 2 hours. In addition to pepsin inhibition, an increase in pH also leads to increased gastrin secretion . Depending on the type of antacid, either **laxative** or **constipating** effects prevail. Some species create a **protective coating** in the stomach , thus protecting the gastric mucosa from the action of HCl and pepsin.

Adverse effects

Adverse effects of antacids are related to an increase in pH, which can cause a change in the absorption of some substances. For example, enteric-coated packages may dissolve prematurely, thereby altering the bioavailability of the drug. Specific side effects are listed for individual types of antacids.

Indication

Antacids are mainly used for dyspepsia associated with **hyperacidity** of the stomach - e.g. heartburn, ulcer disease or gastroesophageal reflux, mostly as part of combined therapy. They are taken between meals.

Representatives

Overall acting [[edit](#) | [edit source](#)]

- **Sodium hydrogencarbonate** (*natrium hydrogencarbonicum*) or baking soda - is the simplest antacid, it has a strong and short-term effect, but a rapid rise in pH can trigger the secretion of gastrin, which will increase the secretion of HCl, thus canceling the neutralizing effect. Sodium bicarbonate belongs to antacids that act generally (they also increase the pH of the blood).
- **Calcium carbonate** (*calcium carbonicum*) – strong and fast effect, the disadvantage is the possibility of absorption of calcium into the blood and a subsequent increase in calcium levels, therefore it should not be administered long-term.

Locally operating [[edit](#) | [edit source](#)]

- **Magnesium oxide** (*magnesium oxydatum*) - in an aqueous environment it changes to magnesium hydroxide and then to $MgCl_2$.
- **Magnesium aluminum** (*magnesium aluminum*) – decomposes in the stomach into MgO and Al_2O_3 , the most commonly used antacid in our country.
- **Aluminum hydroxide** (*aluminum hydroxydatum*) – creates a protective gel on the mucous membrane, the onset of effect is slow, the effect is long-lasting.
- **Magnesium trisilicate** (*magnesium trisilicum*) – releases SiO_2 , it binds HCl and pepsin, forms a protective layer on the mucous membrane, the effect is weak.
- **Aluminum phosphoricum** and basic bismuth nitrate - antacid and protective effects .

Magnesium-containing antacids are more laxative, aluminum compounds are more constipating, so they are often combined.

Links

Related Articles

- Proton pump inhibitors
- H_2 -antagonists

References

- LINCOVA, Dagmar, et al. *Basic and applied pharmacology*. 1st edition. GALÉN, 2002. 601 pp. ISBN 80-7262-168-8 .
- HYNIA, Sixtus. *Pharmacology in a nutshell*. 2nd edition. Prague: Triton, 2001. 520 pp. ISBN 80-7254-181-1 .